

**REMARKS**

Claims 1-15 are pending.<sup>1</sup> Claim 6 has been amended to address an informality.

The Office Action contains an objection to claim 6<sup>2</sup> based on a misspelling of the term "range." Claim 6 has been revised to correct the misspelled term as required.

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 09-171631 (English-language abstract) in the name of Toshihiro (JP '631) in view of U.S. Pat. No. 6,097,746 to Noda et al., further in view of JP 11-096576 in the name of Masahiko (JP '576). Applicant respectfully requests reconsideration of this rejection.

Claim 1 recites an optical recording/reproducing apparatus that comprises, *inter alia*, a semiconductor laser driver, represented as laser diode driver (LDD) 4 in FIG. 1. The LDD supplies a selected one of at least two possible drive currents to the laser diode 2. A current driver outputs a selected increment current to the laser driver in response to control signals. A first increment current is supplied to the laser driver during an automatic power control process. A second increment current is supplied to the laser driver during a special power setting process. A detection unit detects signal power of a laser beam emitted by the laser diode 2. Signal power is detected for the laser beam emitted when the first increment current is supplied to the laser driver, and when the second increment current is supplied to the laser driver. A calculation unit calculates a derivative efficiency of the laser based on the power sample signals. Drive

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<sup>1</sup> The Office Action indicates that claims 1-30 are pending. The Examiner subsequently has agreed that claims 16-30 previously were canceled. This response addresses only those rejections in the Office Action related to pending claims 1-15.

<sup>2</sup> The Office Action indicates that the misspelling is in claim 5.

currents supplied to the laser are controlled based on the calculated derivative efficiency.

JP '631 discloses an optical recording/reproducing apparatus in which a single drive current  $I_r$  is provided by current source 12. JP '631 does not disclose or suggest, for example, an optical recording/reproducing apparatus having a current driver that selectively outputs one of a plurality of increment currents to the laser driver in response to control signals.

Further, current source 9 supplies the erase current  $I_e$ , and current source 5 supplies  $I_p$ . Instead of teaching or suggesting increment currents JP '631 uses three separate current sources for each of the required currents. JP '631 does not teach or suggest that the current driver outputs a plurality of increment currents that includes a first increment current supplied to the laser driver during an automatic power control process, and a second increment current supplied to the laser driver during a special power setting process. It follows that JP '631 also does not disclose or suggest a detection unit detecting a first power sample signal, at a first sampling point of the waveform, from the laser beam emitted when the first increment current is supplied to the laser driver, and the detection unit detecting a second power sample signal, at a second sampling point of the waveform, from the laser beam emitted when the second increment current is supplied to the laser driver.

The Office Action characterizes applicant's description of JP '631 in the application specification as supplying all of the recited features of claim 1, except a "special power setting process." This characterization of the description of JP '631 is not understood by applicant. Applicant does not acknowledge that JP '631 teaches or suggests that "such a system provides for a laser power control system in this

environment with respect to the bottom-level drive as it relates to both the peak power and the erase power.” Applicant objects to the above characterization of applicant’s description of JP ‘631.

The Office Action also contains the assertion that JP ‘631 discloses a laser driver signal that is “appropriately ‘incremented.’” Support for this assertion allegedly is contained in paragraph 6 of a machine assisted translation (MAT) of JP ‘631. Applicant does not understand this assertion: No MAT has been provided for JP ‘631.

Noda et al. does not remedy the deficiencies of JP ‘631. Noda et al. discloses automatic current-control (ACC) circuits for high-speed digital optical communications. Noda et al. is not in the same “environment” as JP ‘631 and applicant’s optical recording/reproducing apparatus. More significantly, the ACC circuits of Noda et al. keep the drive current to the communications laser constant at a set current value. Noda et al. does not teach or suggest recited features missing from the optical recording/reproducing apparatus of JP ‘631 such as a current driver that selectively outputs one of a plurality of increment currents to the laser driver in response to control signals.

JP ‘576 does not remedy the deficiencies of JP ‘631 and Noda et al. JP ‘576 (English abstract) discloses a system that searches iteratively for an appropriate D/A converter 4 output voltage. To the extent that the MAT (machine assisted translation) of JP ‘576 is understood by applicant, the system includes an MPU 5 that controls output of laser diode 1 based on the output of A/D converter 4. MPU 5 controls the output voltage of D/A converter 9, which output voltage controls the current supplied by current source 10 to laser diode 1. JP ‘576 does not teach or suggest a current driver selectively outputting one of a plurality of increment currents to the laser driver in

response to control signals, which feature also is missing from the disclosures of JP '631 and Noda et al.

Claim 1 is patentable over JP '631 in combination with Noda et al. and JP '576 for at least the reasons set forth above. Claims 2-15 depend directly or indirectly from claim 1 and should be allowable with claim 1, and for other reasons.

Documents in a language other than English are relied upon in the Office Action rejections. Applicant respectfully requests that full-text translations of the JP '631 and JP '576 references be obtained pursuant to MPEP §706.02 II.

In view of the above remarks and amendment, applicant believes the pending application is in condition for allowance.

Dated: December 23, 2005

Respectfully submitted,

By 

Mark J. Thronson

Registration No.: 33,082

Peter F. McGee

Registration No.: 35,947

DICKSTEIN SHAPIRO MORIN &  
OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorneys for Applicant